

Methodology for Reported Data on the Four Key Care Continuum Indicators

For 2010 to the present, using the Internet we identified 89 national care continua that represented 93% of the 2015 global estimate of people living with HIV. We update the search on a quarterly basis and also incorporate newly published continuum as they become available in the public domain (please send and/or see the website submission tab if you have a new public domain continuum to bring to our attention).

We reviewed the methodology for collecting data on or estimating the following four key steps in the treatment cascade: 1. Estimated number of people living with HIV, 2. Estimated number of people living with HIV diagnosed as HIV-positive, 3. Estimated number of people living with HIV receiving ART, and 4. Estimated number of people living with HIV with suppressed or undetectable viral load.

Table 1: Sources of information on the four key steps in the HIV continua of care for 61 countries with complete continua (i.e. with data on ART coverage and viral suppression)

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVNG WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Argentina	National program report	UNAIDS estimate	Estimated using data on notifications of new HIV infections and deaths	Registers of AIDS Direction (Ministry of Health), registrations in semiprivate and private health subsystems	VL <50 copies/mL Data from AIDS Direction. Calculated using a sample of people on ART receiving VL
Armenia	UNAIDS meeting report	UNAIDS estimate	Not available	National Center for AIDS Prevention (NCAP), Ministry of Health	VL <250 copies/mL Based on data from NCAP laboratory
Australia	National surveillance report	Diagnosed + Undiagnosed (based on cross-sectional prevalence surveys and on reported HIV and AIDS cases)	National HIV Registry and estimation of deaths	ART coverage is estimated as average of 4 approaches: ARV prescription count (Australian HIV Observational Database or AHOD); self-reported ART use in large national survey; pharmacy dispensing data from New South Wales; study in Victoria analyzing data on ARVs and non-identified individuals receiving ART in Melbourne	VL <400 copies/mL Calculated as proportion of people with viral suppression recorded in AHOD (cohort size of 3,972)
Bangladesh	WHO Country Fact Sheet	UNAIDS estimate	Estimated using cumulative number of people diagnosed with HIV	National programme data	Viral Load not done

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVING WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Belarus	National program review by WHO	Numbers based on estimate & personal communications with the Infectious Disease Hospital in Minsk	Numbers based on estimate & personal communications with the Infectious Disease Hospital in Minsk	Numbers based on estimate and personal communications with the Infectious Disease Hospital in Minsk	Numbers based on estimate and personal communications with the Infectious Disease Hospital in Minsk
Belgium	National cohort data	UNAIDS estimate	National registration of new diagnosis	National cohort data	VL <500 copies/mL National cohort data
Brazil	Country presentation	Sistema de Informacao de Agravos de Notificacao or System for notifiable diseases information (SINAN) and Sistema de Informacao de Mortalidade System on Information on Mortality (SIM)	SINAN and SIM	Sistema de Controle Logistico de Medicamentos or Logistics Control System of Medicines (SICLOM)	VL <1,000 copies/mL Sistema de Controle de Exames Laboratoriais or System for Laboratory Tests Control (SISCEL)
Cambodia	PEPFAR Country Operational Plan	UNAIDS estimate	Calculated as: # of pre-ART + ART patients at end of 2014 plus new positive diagnoses in 2015 minus deaths in 2015 from pre-ART and ART	National Centre for HIV/AIDS, Dermatology and STIs (NCHADS) program data	VL <1,000 copies/mL Data from VL lab database. Calculated using a sample of people on ART receiving VL (65% PLHIV on ART tested for VL)
China	PEPFAR Regional Operational Plan	UNAIDS estimate	National Center for AIDS/STD Control and Prevention (NCAIDS) program data	NCAIDS program data	VL <1,000 copies/mL NCAIDS program data (viral load test for 90% of PLHIV on ART)
Colombia	UNAIDS report	UNAIDS estimate	Ministry of Health and Social protection data	UNAIDS Global AIDS response progress reporting	VL <1,000 copies/mL National program data
Costa Rica	Ministry of health data	UNAIDS estimate	Methods unknown	Program data	Methods unknown
Cuba	WHO report	Ministry of Public Health, HIV Registry. Estimated as the difference between diagnosed and % of undiagnosed relative to the number of late diagnoses, ranging 10%-15% annually	HIV Registry (Calculated as everyone diagnosed between 1986 and 2012 minus deaths)	HIV Registry	Undetectable viral load HIV Registry
Denmark	Swedish-Danish HIV Cohort	UNAIDS estimate	National HIV surveillance reports 1995-2010	Danish HIV Cohort Study (cohort includes all people living with HIV)	VL <500 copies/mL Danish HIV Cohort Study
El Salvador	PEPFAR Regional Operational Plan	UNAIDS estimate	Not available	Not available	Not available
Estonia	National program review by WHO	Mid-value of UNAIDS estimate (7,200-11,000)	Based on newly registered HIV cases and AIDS deaths	Estonian Health Board - single central system for ARV drugs distribution	VL <200 copies/mL Estonian HIV-positive patients database

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVING WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
France	Cohort data from published study	Diagnosed + Undiagnosed (estimated using HIV surveillance data and back-calculation model)	In care (from French health insurance scheme) + those not yet in care (estimated using FHDH-ANRS-CO4 cohort data). *FHDH - French Hospital Database on HIV and ANRS – Agence Nationale de Recherche sur le Sida et les Hépatites Virales	Estimated using data from the FHDH-ANRS-CO4 cohort	VL <50 copies/mL Estimated using data from the FHDH-ANRS-CO4 cohort Cohort includes data on more than 120,000 HIV-infected patients from 70 French general or university hospitals
Georgia	Published study	UNAIDS estimate	National AIDS health information system (AIDS HIS)	AIDS HIS	VL <1,000 copies/mL AIDS HIS
Guatemala	PEPFAR Regional Operational Plan	UNAIDS estimate	Not available	Not available	Not available
Guyana	UNAIDS country progress report	UNAIDS estimate	Data not available	National AIDS Program Secretariat (NAPS) Care and Treatment data	VL <1,000 copies/mL National AIDS Program Secretariat (NAPS) Care and Treatment data
Honduras	PEPFAR Regional Operational Plan	Not available	Not available	Not available	Not available
India	WHO Country Fact Sheet	UNAIDS estimate	Methods unknown	National programme data	National data. Calculated using a sample of people on ART receiving VL
Jamaica	Country report	UNAIDS estimate	HIV/AIDS Tracking System and the Treatment Site Databases	HIV/AIDS Tracking System and the Treatment Site Databases	Estimated using HIV/AIDS Tracking System and the Treatment Site Databases (5,885 viral load tests done)
Japan	Published study	Diagnosed + Undiagnosed (estimated by age and sex specific HIV-positive rates among first-time blood donors between 2011-2015)	Legal reports to the Ministry of Health, Labour and Welfare - cumulative diagnosis report minus the number of foreigners who left Japan and deaths	Questionnaire survey conducted in the AIDS Core Hospitals throughout the country	VL <200 copies/mL Questionnaire survey conducted in the AIDS Core Hospitals throughout the country
Kazakhstan (15+)	PEPFAR Regional Operational Plan	UNAIDS estimate	Electronic HIV Case Management System (EHCMS)	EHCMS	VL <1,000 copies/mL EHCMS (1,351 VL tests done)
Kenya	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Site improvement monitoring system (SIMS) data	Estimated using data from Site improvement monitoring system (SIMS) data
Kyrgyzstan (15+)	PEPFAR Regional Operational Plan	UNAIDS estimate	Electronic HIV Case Management System (EHCMS)	EHCMS	VL <1,000 copies/mL EHCMS (5,164 viral load tests done)
Lao People's Democratic Republic	UNAIDS country progress report	UNAIDS estimate	Data from Centre for HIV/AIDS and STI	Data from Centre for HIV/AIDS and STI	VL <1,000 copies/mL Data from Centre for HIV/AIDS and STI
Malawi	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Not available	Not available
Malaysia	WHO regional report	UNAIDS estimate	Data not available	UNAIDS Global AIDS response progress reporting, unpublished data	VL <1,000 copies/mL National program data (unpublished)

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVING WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Mauritius	UNAIDS country progress report	Estimate (Source not available)	National Day Care Centre for Immunosuppressed, Ministry of Health	ART Register, National Day Care Centre for Immunosuppressed, Ministry of Health	VL <1,000 copies/mL Central Health Laboratory, Ministry of Health
Mexico	National program report	UNAIDS estimate	Centro Nacional para la prevención y el Control del VIH/SIDA (CENSIDA) - National register of HIV/AIDS cases	CENSIDA program data from public health sector institutions	Undetectable viral load CENSIDA national program data
Mongolia	UNAIDS country progress report	UNAIDS estimate	Not available	AIDS/STI Surveillance and Research Department of National Center for Communicable Diseases (NCCD)	VL <1,000 copies/mL AIDS/STI Surveillance and Research Department of NCCD
Myanmar	WHO Country Fact Sheet	UNAIDS estimate	Methods unknown	National program data (from Global AIDS response progress reporting)	National data. Calculated using a sample of people on ART receiving VL
Namibia	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Not available	Not available
Nepal	National program report	UNAIDS estimate	National program data	ART program data and HIV infection estimates	VL <1,000 copies/mL National program data (National Public Health Laboratory)
Netherlands	Stichting HIV Monitoring	Mid-value of UNAIDS estimate (20,000-34,000)	Stichting HIV Monitoring (SHM) - people at Dutch HIV treatment centers	SHM data	VL <100 copies/mL SHM data
Nicaragua	UNAIDS country progress report	UNAIDS estimate	Ministry of Health records	ART therapy database	VL <1,000 copies/mL ART therapy database
Panama	PEPFAR Regional Operational Plan	UNAIDS estimate	Not available	Not available	Not available
Paraguay	UNAIDS country progress report	UNAIDS estimate	Dept. of comprehensive care/ National program of HIV/AIDS Control (PRONASIDA)	Dept. of comprehensive care/ National program of HIV/AIDS Control (PRONASIDA)	VL <1,000 copies/mL Dept. of comprehensive care/ PRONASIDA
Philippines	WHO regional report	UNAIDS estimate	HIV/AIDS & ART Registry of the Philippines, 2015	HIV/AIDS & ART Registry of the Philippines, 2015	VL <1,000 copies/mL HIV/AIDS & ART Registry of the Philippines, 2015
Romania	National program report	Methods unknown	Methods unknown	Methods unknown	Methods unknown
Russia	Conference abstract	Estimate (Source not available)	Federal AIDS Centre database; national monitoring forms of Rospotrebnadzor (Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing)	Federal AIDS Centre database; national monitoring forms of Rospotrebnadzor	VL <1,000 copies/mL Federal AIDS Centre database; national monitoring forms of Rospotrebnadzor
Rwanda	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Rwanda health management information system (HMIS)	Unknown methods
South Africa	PEPFAR Country Operational Plan	National data from District Health Information System	Data not available	National program data (from Global AIDS response progress reporting)	National Health Laboratory service electronic data

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVING WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Spain	National program report	UNAIDS estimate	EPI-ITS study (2005-2010) - a sentinel surveillance project in a network of clinics specializing in STI	Hospital survey	VL <500 copies/mL Hospital survey
Sri Lanka	WHO Country Fact Sheet	UNAIDS estimate	Methods unknown	National program data (from Global AIDS response progress reporting)	National data. Calculated using a sample of people on ART receiving VL
Suriname (15+)	UNAIDS country progress report	UNAIDS estimate	National HIV master database, Monitoring & Evaluation unit, Ministry of Health	National HIV master database, Monitoring & Evaluation unit, Ministry of Health	VL <1,000 copies/mL National HIV master database, Monitoring & Evaluation unit, Ministry of Health
Swaziland	PEPFAR Country Operational Plan	Swaziland HIV Estimates and Projections 2015	Data not available	Swaziland health management information system (SHIMS), Ministry of Health	SHIMS 2011; Viral Load Suppression of 85%
Sweden	Cohort data from published study	Diagnosed + undiagnosed (estimated based on HIV surveillance data reported to the Public Health Agency of Sweden)	Swedish InfCare HIV Cohort Study – includes 100 % of people diagnosed with HIV and linked to care	Swedish InfCare HIV Cohort Study	VL <200 copies/mL Swedish InfCare HIV Cohort Study
Switzerland	Conference abstract	Diagnosed + undiagnosed (estimated based on MSM modeling study by Van Sighem et al. 2011 and assumptions about testing in other populations)	Back-calculated from people retained in care [Swiss HIV Cohort Study (SHCS) and non-SHCS patients in care] using 2010 data from European MSM Internet Survey	Swiss HIV Cohort Study (SHCS); survey among HIV care providers connected to the SHCS network; Swiss ART sales data to estimate the number of patients treated outside the SHCS network	VL <200 copies/mL Swiss HIV Cohort Study (SHCS); survey among HIV care providers connected to the SHCS network; estimate for patients treated outside the SHCS network
Tajikistan (15+)	PEPFAR Regional Operational Plan	UNAIDS estimate	Electronic HIV Case Management System (EHCMS)	EHCMS	VL <1,000 copies/mL EHCMS (357 people received viral load test)
Thailand	WHO Country Fact Sheet	UNAIDS estimate	National data	National Health Security Office (NHSO) and National AIDS Management Centre, Ministry of Public Health	VL <1,000 copies/mL NHSO and National AIDS Management Centre, Ministry of Public Health
Uganda	UNAIDS country progress report	UNAIDS estimate	Data not available	District Health Information System (DHIS 2)	VL <1,000 copies/mL DHIS 2
Ukraine	National program data	UNAIDS estimate	Number of individuals informed as the HIV cases, excluding cumulatively registered number of AIDS deaths (routine government surveillance data)	Number of PLHIV on ART reported by AIDS Centers to Ukrainian Center for Disease Control (data from routine government surveillance data)	VL <40 copies/mL Estimation source is the number of blood samples tested for viral load
United Kingdom	National program report	Statistical model fitted to a range of surveillance and survey data	Statistical model fitted to a range of surveillance and survey data	National HIV surveillance data	VL <200 copies/mL National HIV surveillance data

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVNG WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
United States	Centers for Disease Control and Prevention (CDC) surveillance report	National HIV Surveillance System. Estimated number of PLHIV aged ≥ 13 years	National HIV Surveillance System. Estimated number of PLHIV aged ≥ 13 years whose HIV infection had been diagnosed by year-end	Medical Monitoring Project. PLHIV aged ≥ 18 years who received medical care during Jan–April 2012 with documentation of ART prescription in the medical record	VL < 200 copies/mL Medical Monitoring Project: Estimated number of PLHIV aged ≥ 18 years who received medical care during Jan–April 2011, and whose most recent VL in preceding 12 months was undetectable or < 200 copies/mL
Zimbabwe	UNAIDS country progress report	UNAIDS estimate	Data not available	Program data from electronic Patient Management System (ePMS)	VL $< 1,000$ copies/mL Electronic Patient Management System (ePMS) data. Calculated using a sample of people on ART receiving VL (Targeted VL testing)

* Continua for Austria, Germany, Greece and Italy were from Gourlay et al 2016. A comparison of the continuum of HIV care in 11 European countries using standardized methods. The various methods and approaches used to estimate the continuum of HIV care from 11 countries were mentioned but could not be distinguished for individual countries.

Table 2: Sources of information on the four key steps in the HIV continua of care for 28 countries with incomplete continua

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVNG WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Angola	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National AIDS Institute (INLS) program data	Data not available
Antigua and Barbuda	Newspaper article	Data not available	National program data	National program data	Data not available
Bahamas	PEPFAR Regional Operational Plan	UNAIDS estimate	Data not available	Not available	Data not available
Barbados	PEPFAR Regional Operational Plan	Surveillance data	Data not available	Not available	Data on no. of VL tests among PLHIV on ART unavailable to determine VL suppression rate
Bhutan	WHO Country Fact Sheet	UNAIDS estimate	National program PLHIV database	National program PLHIV database	Data not available
Botswana	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Not available	Data not available
Burundi	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National AIDS Council (CNLS) program data	Data not available
Cameroon	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	Not available	Data not available
Cote d'Ivoire	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	PEPFAR Cote d'Ivoire program data	Data not available
Dominican Republic	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	HIV patient monitoring system	Data on no. of VL tests among PLHIV on ART unavailable to determine VL suppression rate
Egypt	UNAIDS country progress report	UNAIDS estimate	HIV case detection	Not available	Data not available
Ethiopia	PEPFAR Country Operational Plan	HIV-related estimates and projections for Ethiopia– Federal Ministry of Health	Data not available	Not available	Data not available
Ghana	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National AIDS Control Programme (NACP) Service Data	Data not available
Haiti	PEPFAR Country Operational Plan	Small Area Estimates, Office of Global AIDS Coordinator 2015	Data not available	National program data	Data not available
Indonesia	WHO Country Fact Sheet	UNAIDS estimate	Methods unknown	Ministry of Health data	Data not available
Lesotho	PEPFAR Country Operational Plan	UNAIDS estimate	Unknown	National program data (from Global AIDS response progress reporting)	Data not available

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVNG WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD
Maldives	WHO Country Fact Sheet	Unknown	Methods unknown	National program data	Methods unknown
Morocco	UNAIDS country progress report	Data not available	Methods unknown	Methods unknown	Methods unknown (inconsistent data)
Mozambique	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National program data	Data not available
Nigeria	PEPFAR Country Operational Plan	Estimate based on PEPFAR Datapack	Data not available	National program data (from Global AIDS response progress reporting)	Data not available
Papua New Guinea	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National program data (from Global AIDS response progress reporting)	Data not available
Somalia	UNAIDS country progress report	UNAIDS estimate	Program data from 3 Somali zones	Program data	Data not available
South Sudan	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National program data	Data not available
Tanzania	PEPFAR Country Operational Plan	UNAIDS estimate	Data not available	National program data	Data not available
Timor-Leste	WHO Country Fact Sheet	UNAIDS estimate	Methods unknown	National program data	Data not available
Trinidad	PEPFAR Regional Operational Plan	Estimate (method unknown)	Data not available	Not available	Data not available
Viet Nam	PEPFAR Country Operational Plan	UNAIDS estimate	Viet Nam Administration of HIV/AIDS Control (VAAC) HIV case reporting data	Viet Nam Administration of HIV/AIDS Control (VAAC) program data	Data not available
Zambia	PEPFAR Country Operational Plan	Estimate based on PEPFAR Datapack	Data not available	Not available	Data not available